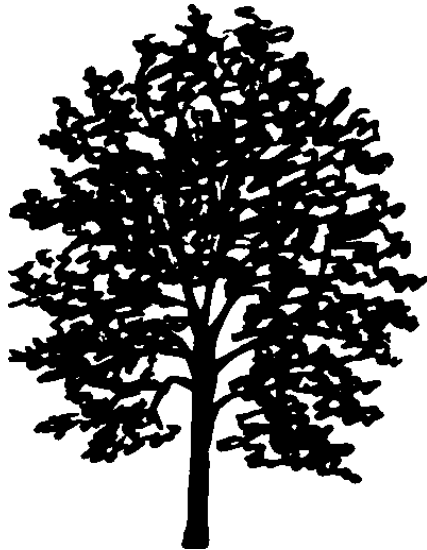


# PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

MAY 22, 1997



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## Hybrids of Flowering Dogwoods for NJ Nurseries and Landscapes

Raul I. Cabrera, Ph.D., Nursery Crops Management, and Elwin R. Orton, Jr., Research Professor in Plant Breeding

The woody ornamentals breeding program of Rutgers has been producing plant materials for the nursery and landscape industry for over thirty years. Over this period superior cultivars, hybrids and selections of American and Japanese hollies and *Pyracantha* have been patented and released. Recently this program has produced and released the first known interspecific hybrids of our native Eastern dogwood, *Cornus florida*, with the Oriental dogwood *Cornus kousa*. Six cultivars which constitute Rutgers' STELLAR series of large-bracted dogwoods have been introduced as Rutgers' answer to dogwood decline.

The hybrids exhibit moderate to high field resistance to *Discula destructiva*, the incitant of the devastating anthracnose disease. They also possess high resistance to the common dogwood borer and are one fourth to one third more vigorous than typical plants of the parental species.

Plants of these six hybrids are very floriferous, with a floral display period intermediate to that of plants of the parental species. Five of the six hybrids bear white floral bracts, and one produces pink bracts. The first four listed below are similar to plants of *C. kousa*, being upright in habit. However, they do not exhibit the marked vase-shape typical of many plants of *C. kousa* when young, as the hybrids are fully branched and uniformly wide from base to top. The other two hybrids listed are like plants of *C. florida*, as they are low and spreading in habit and flower earlier in May than do the first four hybrids. Trees of all six hybrids exhibit flat leaves of a rich, dark green color.

1) *Cornus* 'Rutban', AURORA: A highly vigorous, upright form with large, rounded, velvety, overlapping floral bracts. Floral display commences mid-May in New Jersey.

2) *Cornus* 'Rutgan', STELLAR PINK: A highly vigorous, upright form with flower heads exhibiting rounded, overlapping bracts of moderate size and a beautiful, soft pink coloration.

3) *Cornus* 'Rutdan', CELESTIAL: A highly vigorous tree of upright habit that bears flower heads with beautiful rounded, overlapping bracts of heavy texture. At the start of the floral display, the bracts form an attractive cup with a slight tinge of green, but the bracts soon become flattened and pure white.

SEE HYBRIDS ON PAGE 2

4) *Cornus 'Rutcan'*, CONSTELLATION. A highly vigorous upright form with the earliest period of floral display of the upright hybrids. The bracts are long and separate, and provide a brilliant, white display even when observed from a considerable distance.

5) *Cornus 'Rutfan'*, STARDUST. A small, low and spreading form that is heavily branched with foliage right to the ground. The showy, white, floral bracts are rounded and non-overlapping.

6) *Cornus 'Rutlan'*, RUTH ELLEN. A vigorous, low and spreading tree that is considerably larger than those of STARDUST. The floral display of this cultivar commences about the time the floral display of most plants of *C. florida* ceases; and one day ahead of STARDUST, two days ahead of CONSTELLATION, and five to seven days ahead of AURORA, CELESTIAL, and STELLAR PINK. The floral bracts of RUTH ELLEN provide a brilliant white display even when viewed from a distance.

The culture of these hybrids is no different than those for plants of the parental species. Briefly, transplant young specimens (as small as 3-4') balled and burlapped or container-grown to acid, well drained soils with sufficient organic matter. This is very important, as dogwoods require good drainage but also ample water supply. The trees could be placed in partially shaded locations, although they do better in full sun. They should be mulched to moderate soil temperatures and reduce moisture losses. Mulching also helps prevent damage to the trees by lawnmowers or line trimmers.

The STELLAR dogwood hybrids have been patented and trademarked, with liners available, except for STARDUST, in wholesale quantities from the following licensed nurseries. On the other hand, finished trees - both in B&B and containerized form - should be available at many retail nurseries and garden centers across New Jersey. Look for the wrap-around patent and trademark labels.

Commercial Nursery Co., Inc. Decherd, TN (615) 967-5525	Greenleaf Nursery Co. Park Hill, OK (800) 331-2982
Moller's Nursery, Inc. Greensham, OR (503) 663-3515	Phytotektor, Inc. Huntland, TN (615) 469-7286
Princeton Nurseries Son Co. Allentown, NJ (609) 924-1776	J. Frank Schmidt, III and Son Co. Boring, OR (503) 663-4128
Shadow Nursery Inc. Winchester, TN (615) 967-6059	Tennessee Valley Nursery, Inc. Winchester, TN (615) 967-4541
The Tankard Nurseries Exmore, VA (804) 442-6112	

## Ornamental Pests

Debbie Smith-Fiola, Ocean County Agricultural Agent and Steven K. Rettke, Landscape IPM Program Associate

**FLETCHER SCALE ON YEW (TAXUS)** is laying eggs now, which will hatch in June. Monitor now for hemispherical, 1/8", yellow-brown adult scales; look for dieback damage and needle yellowing. Small shrubs may be killed. Immature scales grow quickly and produce much honeydew, which results in foliage becoming covered with sooty mold. The crawlers are easy to control with 1 spray of 1% oil or soap.

**AZALEA LACEBUG: (285 GDD)(PPI = redbud)**

Overwintering eggs are partially embedded in leaf tissue near or in the mid-rib vein. There can be 3 or 4 generations per year in NJ (more following an early spring like this year!). Nymphs and adults suck chlorophyll from leaf tissue, causing a white-colored

stippling pattern. Nymphs appear black and spiny, while the 1/8 inch long adults have lacy transparent wings held flat across the back. The adults can fly but are not commonly seen while in flight. Plants located in full sun often receive the earliest and most severe damage (beneficial insects usually are unable to control this pest in sunny locations). Turn stippled leaves over to monitor for active lacebugs and for black excrement spots that stick to the bottom surface of leaves. Although proper spray coverage is difficult, repeated horticultural soap or oil sprays can provide suppression if sprayed on the underside of leaves. Acephate (Orthene) will give excellent control by treating the tops of foliage because of its systemic capability. Imidicloprid (Merit) will also give good results against this pest with lead time.

**BRONZE BIRCH BORER: (440-880 GDD) (PPI = Kousa dogwood & Mockorange)** Larvae overwinter under the bark. Adults emerge in late spring and leave their characteristic 1/8" long, D-shaped exit holes (there is only one generation per year). Adults are 3/8" beetles, narrow-bodied and dark gray in color with a faint bronze-metallic sheen. A dead crown leader is the early symptom, indicating that internal larvae have destroyed sections of the vascular tissue. Infestation and dieback usually start at the top and work down infested trees. White and European birch species are most vulnerable to attack. Dead and dying branches should be pruned off in late winter or late summer. Avoid pruning during late spring months since emerging egg-laying adult beetles will be attracted to pruning wounds.

Maintaining vigor is essential for preventing this pest. Help maintain adequate sap pressure by reducing drought stress possibilities. Controlling the

Birch Leafminer is critical for improving the longevity of this sensitive tree. Consider replacing borer

infested trees with the resistant “Heritage” birch (*B. nigra* “Heritage”).

Chlorpyrifos (Dursban) can act as a preventive or protective treatment when sprayed on the bark. The pesticide must be applied to nearly the entire tree, since eggs may be laid on the trunk and branches 1 1/2 inches in diameter or greater. Since there are no pheromones available to trap the adults, accurate spray timing of the pesticide becomes less certain. The chemical barrier must be in place on the bark before the eggs are laid, which usually starts in late May or early June.

**SOUTHERN RED MITES : (246-363 GDD) (PPI = Serviceberry— finished bloom)** This cool season mite is active in the spring and fall. Bright red eggs overwinter on the undersides of leaves of many plants, including firethorn, rose, azalea, rhododendron and viburnum. They are most commonly found on *Ilex* (Holly) leaves, especially the species *Ilex convexa* (Japanese Holly). With heavier populations, the mites and the stippling damage can be found on both sides of the foliage. Lower leaf surfaces often appear dusty because of the numerous egg shells and shed skins. Native predators are effective, and this pest is often kept in check except under outbreak conditions. When overwintering eggs are numerous, the undersides of leaves can be treated with a horticultural oil (achieving good coverage may prove difficult, especially with the convex leaves of *Ilex convexa*). In heavy infestations, the use of a residual miticide may be necessary. Control them early with something with ovicidal activity (kills eggs) such as oxythioquinox (Morestan) [read label precautions before using], or oil. Other miticides such as chlorpyrifos (Dursban), dicofol (Kelthane), and fluvalinate (Mavrik) are labeled but close attention and frequent monitoring visits are required since eggs are not killed, and at least 2 sprays are required.

**HEMLOCK WOOLLY ADELGID: (350 GDD = 50% hatch)** Eggs have hatched; crawlers/nymphs are out now waiting for the new growth to start. Nymphs settle on new growth at the base of the needles on the underside of foliage. They are oval and black in color, with a marginal fringe of white hairs. Flip over new growth and use a hand lens. Delay control until the new, tender foliage is hardened off so there will be no chance of burn. Research has shown 92-100% control with 1% oil or soap at this time as long as the underside of *new* growth is targeted. Do not waste time and material spraying last year’s cottony masses on old foliage now (unless soaps are being used to help dissipate the wax). Furthermore, nymphs will be exposed and vulnerable to sprays all summer long, since the protective white wax is not produced until late October or November (some of the older literature has *incorrectly* stated that Hemlock Woolly Adelgids were dormant and not controllable during the mid- to late-summer months). Imidicloprid (Merit) has shown excellent controls against this pest as

well. This material may be most successful as a soil injection/drench with very tall hemlocks *now*, where effective foliar sprays may prove difficult.

**BOXWOOD LEAFMINER: (448-700 GDD)(PPI = Kousa Dogwood & Weigelia)**

Adults of this imported pest are orange-yellow mosquito-like flies about 1/8 inch in size. They can be seen swarming around boxwoods for a two week period during mid-May (~290+ GDD)(shake bushes to detect flying adults). Yellowish, blister-like blotch mines on the under surface of leaves are caused from larvae feeding inside the leaves of American boxwood. Heavily mined foliage turns yellow and drops prematurely. Current season’s damage does not become readily apparent until the fall, since the heaviest feeding is done in the fall and late winter months. When the egg laying adults are seen, contact insecticides can provide good suppression. If numerous mines are found during the summer and fall, a systemic spray (dimethoate [Cygon], acephate [Orthene], or Imidicloprid [Merit]) can be applied to kill larvae within the mines. The overwintering larvae are also susceptible to these controls during the late winter feeding period. Avid and Telstar are also labeled. Replace susceptible plants with resistant cultivars.

**PEARLEAF BLISTER MITE:** These eriophyid mites attack Callery Pear (“Bradford” and others). Overwintering mites feed on new growth, causing pale green bumps (“blisters”) on the underside of leaves, which gradually turn purple and then brown as the mites enlarge and continue feeding. This damage is often misdiagnosed as scorch. PBM blisters are often located in parallel rows lengthwise on the leaf. Although light infestations can be tolerated, horticultural oil gives good control if applied just after bud break, to active mites. (Dormant oil won’t contact the protected, overwintering mites within leaf buds.)

**GOUTY OAK GALLS** are woody galls up to 2" long, formed on the branches of many oaks. Large galls may girdle branches and cause significant dieback. They are caused by female wasps emerging from old galls in late May. They lay eggs in oak leaves; the hatched larvae feed and cause a blister-like gall to form along the leaf vein. In July, adults emerge again and lay eggs in twigs. The familiar woody galls will grow on these twigs over a period of 2 to 3 years.

Although pruning out galls is the only recommended control, it is realistically not very effective, since it is hard to get rid of all the overwintering galls in the area. Contact insecticides will kill emerging adults, yet timing and coverage is difficult, so overall control is minimal. Since most wasp attacks are at the tips of trees, leaf expansion makes it difficult to provide an effective pesticide residue. No research is available on injections or soil applications; but such treatments may not get into the gall to kill the wasp before adults emerge by the end of the month. (Source: *Purdue Pest Advisory*) □

# Scheduling Garden Mums, Part I

George Wulster, Ph.D., Floriculture

Along with the increasing popularity of garden mums have come diverse market objectives for the crop, with expansive scheduling options. Garden mums may be grown spring, summer and fall, in greenhouses or in the field, in the ground or in containers that may range in size from cell packs to multiple gallons. A detailed production schedule is best developed through consultation with your plant supplier regarding suitable varieties and cultural practices to achieve your marketing objectives.

Four important factors need to be considered: cultivar response group, final size desired, cultural practices, and environmental factors.

1. **Cultivar response group:** We usually think of chrysanthemum response groups as reflecting the number of weeks of short days (long nights) required to result in flowering. Catalogues may have designations such as 7, 8, 9 week cultivar. With garden mums these designations are only considered reliable in production programs where photoperiod and temperature are well controlled, i.e. spring flowering programs in the greenhouse. Under the conditions of natural daylength and temperature associated with late summer and fall production in unheated greenhouses or out of doors, it is more appropriate to think in terms of early, middle, and late flowering types. Garden mums, because of historical breeding objectives (earliness or lateness under natural conditions), unlike their greenhouse counterparts may initiate flowers under a wide range of environmental conditions.

2. **Plant size:** The size of plant you desire for your market will determine scheduling. The choices are between smaller plants grown in smaller containers for a shorter period of time on closer spacing, or larger plants grown in larger containers over longer periods of time at greater spacings. When grown under natural conditions for fall, Yoder Brothers, for example, describes these two approaches as 'fast cropping' and 'regular natural season cropping' respectively.

3. **Cultural Factors:** The following are some practices that will directly impact scheduling considerations:

**Rooted or Unrooted Cuttings:** Cuttings can be obtained from supplies rooted or unrooted. If you obtain unrooted cuttings you need to add about 10-14 days to your production schedule compared to rooted cuttings. For example, the Mid-Atlantic area may receive unrooted cuttings around May 20th or rooted cuttings the first week in June for plants to be grown in 8 inch pots under a natural season programming schedule.

**Pot size:** Production schedules lengthen (Table 1) and the number of cuttings per pot increases (Table 2) as pot size increases. An example in the Northeast for unrooted cuttings is shown in Table 1. For rooted cuttings the receipt date would be 10 to 14 days later.

**Table 1. Effect of pot size on natural season scheduling.**

Pot Size	Receive and Stick	Plant	1st Pinch
5 inch	6/10	6/24	7/4
6 inch	5/30	6/14	6/30
8 inch	5/20	6/4	6/20
9 inch	5/10	5/25	6/7

**Pinching:** Not all garden mum schedules call for pinching. For example, Yoder Brothers recommends not pinching plants in 6 inch or 4 inch pots when following their fast crop schedule (Table 8). For pinched crops, the schedule is a only guide. Cultural practices and environmental factors may cause your crop to be "ready" for pinching at a different time than the schedule indicates. The plant is ready for the first pinch when root growth is visible on the sides and bottom of the pot (approximately 2 weeks from planting). The second pinch is when breaks are 2 to 3 inches long (approx. 2- 3 weeks). The date of the last pinch is an important scheduling factor, especially in the regular season 2 pinch program. Yoder Brothers recommends for their varieties that pinching be completed by July 20th except in southern areas where it may be 7 to 10 days later or in cooler areas such as the Northwest where July 4th should be the target for mid-August flowering. If multiple plants are used, i.e. 3-5 per 8 inch container, only one pinch is required and should be completed by mid-July. A typical schedule is shown in table 2.

**Table 2. Effect of number of plants per pot on natural season scheduling**

# of Plants/ Container	Plant Date	1st Pinch Date	Last Pinch Date
1 plant	6/5	6/25	7/18
3 plants	6/14	7/1	7/18

Delaying the last pinch date will delay flowering. The significance varies by variety and does not necessarily result in a day for day delay. Table 3 shows the impact of later pinching dates on the flowering date of some varieties.

**Table 3. Effect of pinch date on flowering date during two different seasons.**

Variety/Color	2nd Pinch Date	Flowering Date	2nd Pinch Date	Flowering Date
Starlet/Bronze	7/12	9/30	8/6	10/10
Stardom/Lav.Pnk	7/12	9/23	7/30	10/9

See the next issue of the newsletter for Part II, which includes production schedules and covers the cultural factors of growth regulators, environmental factors, temperature, nutrition and watering. □

# Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Coordinator, Plant Diagnostic Laboratory

## ◆ Landscape

**Environmental stress** is the primary problem associated with recent landscape samples. Spruce samples from Ocean, Union, and Atlantic counties had discolored needles due to **winter temperature extremes**. The laboratory continues to get many samples of pachysandra with **winter injury**. Lilac samples from a Monmouth County residential landscape were diagnosed with **frost injury**. **Bacterial blight** was also evident on lilac from this site. **Frost injury** is usually a predisposing factor for **bacterial blight**.

Other disease problems of note from landscape plantings include: **juniper tip blight**, caused by the fungus *Kabatina*, from Union County; **Phyllosticta leaf spot** on English ivy from Bergen County; and **blue mold** on tulip bulbs from a Passaic County resident.

## ◆ Turf

**Pink snow mold** flared-up on bentgrass golf greens this past week. Samples of the disease were submitted to the laboratory from golf courses in New York, Pennsylvania, and New Mexico. **Yellow patch** was also active on turf from the same New York course. **Anthraxnose basal crown rot** continues to increase in importance on area turf. Two New York courses sent samples that were diagnosed with the problem. One of the sites also had high levels of **nematodes** in the soil. **Take-all patch**, caused by the fungus *Gaeumannomyces graminis*, was identified on turf from a golf course near Philadelphia. **Leaf spot and melting-out** of Kentucky bluegrass was diagnosed on turf from an Atlantic County golf course. The course increased the impact of the disease as they began to convert rough areas to fairway height of cut. Finally, **pythium root disease complex**, was identified on turf from New York, and from New Jersey golf courses in Burlington and Middlesex Counties.

## ◆ Greenhouse and Nursery

A Burlington County nursery brought several samples to the laboratory this week. The fungus *Botryosphaeria* was causing a dieback on barberry and mountain laurel. **Winter injury** was diagnosed on butterfly bush, roses, and on several rhododendrons. Another nursery, in Monmouth County, submitted several lilacs that had root and crown rot, caused by the fungus *Phytophthora*. All of the plants came from wet areas of the field. One sample also had **lilac borer**.

A Middlesex County greenhouse grower sent samples to the laboratory of snapdragons that were diagnosed with **downy mildew**. Another greenhouse grower from Monmouth County had problems with **sclerotinia crown rot** in their dusty miller and their ageratum crop.

## ◆ Insect Identification

Household pests and stored product pests are being submitted to the laboratory for identification with increasing frequency. Insects and related animals identified this week include **termites**. □

## Ornamental Insect/ Disease Clinic

June 12, 1997

9:30 a.m. to 11:30 a.m.

Deep Cut Gardens  
Middletown, NJ  
Monmouth County

- ❖ A hands-on 2 hour walking tour featuring key ornamental insects and diseases
- ❖ Learn to identify and monitor pests in the field, up close and personal with Rutgers Cooperative Extension faculty
- ❖ IPM control measures and monitoring will be discussed

Rain or Shine

Cost: \$5.00

Pesticide credits in category 3A

Call for reservations and directions,  
Rutgers Cooperative Extension of  
Ocean County (908) 349-1246

## Lyme Disease: A Seminar for the Public & Professionals

- ❖ Prevention
- ❖ Awareness
- ❖ Treatment

May 31, 1997

9:00 a.m. - 12 Noon

Ocean County College  
Toms River, NJ

For information, call (908) 255-0404

# Diseases of Turfgrass

Bruce B. Clarke, Ph.D., Turf Plant Pathology

**General:** *Ascochyta* leaf blight, stripe smut, and leafspot and melting-out are quite evident on Kentucky bluegrass throughout the State. Many lawns have experienced severe thinning and are now prone to weed invasion. Red thread and take-all patch are also prevalent on turf at this time. Preventive dollar spot and summer patch sprays should be in place. Refer to recent issues of this newsletter for complete disease control information.

**Ascochyta leaf blight:** Several reports of leaf blight, caused by the fungus *Ascochyta*, have been received recently from central New Jersey. Turf areas that have a thick thatch layer (1 to 3") are most susceptible to attack. Upon close inspection, both healthy and diseased leaves are evident within blighted areas. Infected leaves typically appear "white" from the "tip down". Under certain conditions, lesions may extend all the way down to the leaf sheath. As lesions age, prominent black pycnidia (fruiting bodies) develop along the bleached portion of affected tissue. Unlike anthracnose fruiting bodies, these structures lack visible black spines. During moist conditions spores are released and infect healthy turf. Since *Ascochyta* enters grass through wounds, infection is most severe just after the grass is mowed. For best results, avoid frequent mowing, raise the height of cut, use a "sharp mower blade", water as deeply and infrequently as possible without causing moisture stress, water in the early morning hours, avoid excessive applications of nitrogen, and remove excess thatch. Although fungicides are not currently labeled for the control of this disease, mancozeb has shown promise in research tests. Chemical control, however, is rarely warranted since affected turf typically recovers with proper maintenance.

**Dollar spot:** Dollar spot will soon develop on golf and landscape turf. To prevent this disease from causing damage to susceptible turf again in 1997, maintain adequate nitrogen fertility, water in the early morning hours, reduce thatch, avoid the sole use of any fungicide for prolonged periods of time (to reduce the possibility of disease resistance), and apply Banner, Bayleton, Chipco 26019, Curalan, Daconil, Eagle, mancozeb, Manicure, Rubigan, Sentinel, Thalonil, Touche, or Vorlan. Repeat fungicides as needed through late-October.

**Pythium Root Rot:** This disease has been reported again on golf course greens. The *pythium* species that cause this disease typically attack bentgrass and annual bluegrass roots during the fall and spring months. Infection occurs during extended periods of cool "wet" weather. Symptoms may appear as a general thinning of affected turf. Infected plants often exhibit a purple to pale-yellow cast. Since infection occurs below ground, mycelia does not develop on the foliage. To control, improve drainage and treat affected areas now with a contact Pythium fungicide (i.e., Koban or Terrazole), and overseed to fill in severely damaged areas. For best results, repeat fungicide treatments in five to seven days with a systemic Pythium fungicide (i.e., Aliette, Banol, or Subdue) and then apply again in October to prevent

reinfection.

**Powdery Mildew:** This disease has been identified on landscape turf during the past few days. In most cases, powdery mildew occurs in shaded areas on lawns with poor air circulation. Although control is usually not required, present infections may be checked with Banner, Bayleton, Eagle, Rubigan, or Sentinel, if desired.

**Summer patch:** This disease, caused by the fungus *Magnaporthe poae*, can be controlled through the use of sound cultural practices and the application of systemic fungicides. For best results, maintain soil pH at or slightly below 6.0, fertilize turf with ammonium sulfate (during cool weather only) or sulfur-coated urea, avoid the use of nitrate-based fertilizers (which can enhance symptom severity), and aerify to reduce compaction. Fungicides are most effective when applied in late-May (when the soil temperatures at a 2 inch depth exceed 65°F for 5 to 6 consecutive days) and then repeated two additional times at 28 day intervals. To optimize control, apply Banner 1.1E (4 fl oz product/1000 ft<sup>2</sup>), Bayleton 25DF (4.0 oz product/1000 ft<sup>2</sup>), Heritage 50WG (0.4 oz product/1000 ft<sup>2</sup>), Rubigan 1 AS (4 fl oz product/1000 ft<sup>2</sup>), or one of the benzimidazoles (i.e. - Tersan 1991 50W, Fungo 50W, Cleary 3336 50W @ 8 oz product/1000 ft<sup>2</sup>) in 4 to 5 gal water 1000 ft<sup>2</sup>. If fungicides are delivered in low water volumes (1 to 2 gal water/1000 ft<sup>2</sup>), irrigate with 1/8 to 1/4 inches of water immediately following application to enhance disease control. □

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## Insects of Turfgrass

Paula M. Shrewsbury, Ph.D., Ornamental and Turf Entomology

**Billbugs:** Billbugs are blackish-grey beetles with "snouts". Billbugs prefer highly maintained Kentucky bluegrass, but can also be a pest on perennial ryegrass, fescue, and tall fescue. Their feeding results in small, irregularly shaped brown patches that pull up easily when tugged. The best control strategy is to target adults before they lay eggs because young larvae feed within the stems and are very difficult to control. Begin monitoring at first adult activity which occurs between 280-350 DD<sub>base 50°</sub>. Check the "Weather Summary" which can be found in every issue of this newsletter for DD accumulations in your area. Adult activity should begin within the next month. Adults can be monitored visually (on sunny days) or by placing pitfall traps in hot locations (along walkways and driveways). When monitoring, look for adults that have been killed by the *Beauvaria* fungus (white cottony growth on billbug). If chemical control is warranted (as determined by high pitfall catches), it should target adults before they lay eggs and be applied between 560-624 DD<sub>base 50°</sub>. Chemical controls for adults include pyrethroids (Scimitar, Talstar, Tempo2), chlorpyrifos (Dursban), diazinon (not on golf courses or sod farms), ethoprop (Mocap), fonophos (Crusade), or isofenphos (Oftanol).

SEE BILLBUGS ON PAGE 7

Entomopathogenic nematodes have been shown to give good control. Resistant turf varieties with endophytes should be used. The next "window of opportunity" for controlling billbugs is when older larvae drop out of stems around mid-June to early July (between 925 and 1035 DD<sub>base 50</sub>). If infestations are not too high, damage may be masked with adequate irrigation and fertilization.

**Black turfgrass ataenus:** **Black turfgrass ataenus** is a pest of golf course fairways, greens, tees, and collars. The adults are shiny black and about 1/4" in size. First generation eggs are laid from early May through mid-June. The larvae (very small white grubs) feed on the roots resulting in wilting, thinning, and browning of turf and can be active now (when vanhouette spirea is in full bloom). Monitor grubs by cutting turf (1 sq. ft.) on 3 sides and lifting it. Examine the top few inches for small white grubs. A cup cutter may also be used for sampling grubs (multiply number of grubs per cup cutter by 10 to get per sq. ft. count). Concentrate monitoring in areas where there is decaying thatch or that are high in organic matter. Healthy turf can tolerate 30-50 grubs per square foot. If grub densities are high and damage is occurring chemical control may be warranted. Chemical controls for grubs should be watered in thoroughly and include bendiocarb (Dycarb, Turcam), ethoprop (Mocap), isazophos (Triumph), or trichlorfon (Dylox, Proxol). Entomopathogenic nematodes (*Heterorhabditis bacteriophora* or *Steinernema glaseri*) will also provide good control.

**Annual Bluegrass weevil (*Hyperodes*):** **Annual bluegrass weevil** is a pest of short cut (less than 0.75") annual bluegrass. Young larvae feed within the plant and older larvae come out of the plant and feed on the crowns of the turf. This causes the turf to yellow, wilt, and turn straw colored. Damage first appears along the edges of fairways near woods or perimeters of greens and

tees. You should be monitoring your short cut annual blue grass around tees and greens now, especially if it is yellowing, for larval activity. Larvae should be monitored by gently pulling apart grass blades and examining the crown area to find larvae. At this time it is difficult to control the larvae of the annual bluegrass weevil. If larval densities are high and damage is occurring, an application of imidacloprid (Merit) now may help to control second generation larvae that usually occur in July. You will also want to monitor for 2<sup>nd</sup> generation adults in late June/early July. Control strategies should also include adequate irrigation, raising mowing height if possible, and reducing the amount of annual bluegrass in the turf.

Remember to monitor for **chinch bug**, **sod webworm**, and **cutworm** activity and damage. These pests may be active at this time. Damage usually is not noticed until later in the summer when pest populations are often higher and turf is not actively growing and cannot tolerate as much injury. **White grubs** are also active now. However, spring treatments for **white grubs** are usually ineffective and often do more harm to beneficials than to the **grubs**. In the spring, **grubs** are large and very difficult to control. In addition, grass is growing vigorously and can usually outgrow most insect damage at this time. For best control of **grubs** you want to target the young, small **grubs** around mid-August.

**Help! We need azaleas with AZALEA LACE BUG!** We need several azalea plants located relatively close to each other (ex. within the same industrial park or apartment complex or golf course) that are infested with lace bugs for a study on conserving beneficials. The study involves planting flowering plants (annuals and perennials) around the azaleas to attract beneficials. Please call me (Paula Shrewsbury) or Anna Greene at 908-932-9324. □

Weather Summary For The Week Ending 8 Am Monday 5/19/97

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.10	8.34	-1.65	80	36	54.	-7	120	-66	81
CANOE BROOK	.18	8.85	-2.18	76	38	57.	-3	226	63	78
CHARLOTTEBURG	.29	11.82	.96	76	35	55.	-3	110	12	72
FLEMINGTON	.38	10.26	-.22	78	35	56.	-4	172	-3	80
LONG VALLEY	.25	10.63	-.62	77	39	55.	-4	142	18	88
NEWTON	.27	9.13	-.54	75	34	52.	-7	85	-41	78
FREEHOLD	.07	10.65	.22	80	40	59.	-3	259	36	82
LONG BRANCH	.08	9.20	-1.57	76	40	57.	-4	220	32	64
NEW BRUNSWICK	.17	10.94	.74	77	40	57.	-5	221	-28	91
PEMBERTON	.04	10.12	.17	80	40	60.	-2	327	82	55
TOMS RIVER	.02	9.06	-1.38	78	42	57.	-5	223	15	58
TRENTON	.07	10.18	.74	79	39	59.	-4	226	-54	68
CAPE MAY CRT HOUSE	.04	9.38	.23	76	43	58.	-4	276	29	39
DOWNTOWN	.01	10.12	.71	77	41	58.	-5	255	-36	57
GLASSBORO	.03	12.27	2.29	77	44	60.	-3	291	13	58
HAMMONTON	.00	10.20	.49	77	42	58.	-5	250	-21	47
POMONA	.08	10.35	1.23	75	39	58.	-4	264	39	57
SEABROOK	.00	11.82	3.26	78	43	59.	-4	275	-21	61
ATLANTIC CTY MRINA	.20	7.23	-1.38	68	48	57.	-4	252	36	50
WOODSTOWN	.00	10.77	1.06	78	38	59	NA	299	NA	NA
WES KLINE- GROWING DEGREE BASE 40 PINEY HOLLOW LAST WEEK 125										

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